- a first adder (3) that receives the output signal of said first delay element (1) at a first input for the first summand;

- a second delay element (2) with a delay N that receives the sum produced by said first adder (3);

- a first subtracter (4) that receives the input signal (t(k)) at a first input for the minuend and the output signal of the second delay element (2) at a second input for the subtrahend; and

- a first multiplier (5) that receives the calculated difference of the first subtracter (4), multiplies it respectively with a predetermined multiplication coefficient (αaak)) and outputs the calculated product to a second input of the first adder (3) that receives the second summand, wherein

- in case x equals to 1 the sum produced by said first adder (3) builds the output signal (u(k)) of the branch allpass filters.

5. (Amended) Filter according to claim 2, **characterized in that** every one of said at least one multipliers (5, 9) has quantised coefficients so that it can be realised by at least one shift register, at least one adder or at least one subtracter. renders claim V. & mode fast.

7. (Amended) Filter according to claim 1, **characterized in that** a polyphase filter of order $x \cdot N$ with $x = a$ is realised in a time multiplex and works with a clock frequency $fc = a \cdot fs$.

10. (Amended) IQ-generator in which an incoming sampled bandpass signal s(k) gets multiplied by a signal $A(k)=(-1)^{floor\ (k/N)}$ before being supplied as input signal t(k) to a polyphase filter consisting of N branch allpass filters of order x.N, **characterized by** one polyphase filter according to claim 1 to filter the I-component and the Q-component of a complex baseband signal.